

5

The Andromeda Strain

—Michael Crichton

Synopsis

The Andromeda Strain is a science-fiction novel about a biological disaster. An unmanned satellite contaminated with a microorganism mysteriously returns to Earth. The satellite lands in an Arizona town, and the organism kills all but two of the town's inhabitants—an elderly man and an infant.

A research team of four scientists, all experts in their field, is called to Wildfire, a secret laboratory located beneath the desert in Nevada. The laboratory is equipped with state-of-the-art equipment. Sealed off from the world except for a telecommunications link with national security, the scientists work to discover how the microorganism killed the inhabitants of Piedmont, Arizona. They also discover why two people survived. They work scientifically to prevent the spread of the Andromeda strain, but their work is riddled with mistakes.

Their desperate search for an answer to the puzzle of the Andromeda strain becomes complicated when the seal is broken in the autopsy room. This breach leads to the realization that Andromeda has mutated to a harmless organism. However, shortly after this realization, Andromeda dissolves the seals to the facility core. When contamination of the core occurs, there are three minutes to stop an automated atomic bomb that will self-destruct the laboratory. If the bomb goes off, it will spread Andromeda by providing it with energy to multiply and mutate again. The scientists race against time to keep the bomb from exploding. After the catastrophe is avoided, the scientists predict that the organism will move into the upper atmosphere and cause no further problems on the surface.

Student Focus

While literary topics such as plot and character development are important, you should pay close attention to the topics of scientific inquiry and method. What sort of errors are made by the characters? Notice that the author fails to address the question of whether Andromeda had nucleic acids.

Correlation to Subject Matter

Viruses, Bacteria, Disease, Mutations, Biochemistry, and Genetics

Analyzing the Book

Identifying Facts

1. List the names of the four scientists and their occupations, and describe the personality characteristics of each one.

2. What were Lieutenant Shawn and Private Crane sent to Arizona to retrieve? Did they find it? Where was it?

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3. What happened in Piedmont, Arizona?

4. Describe what Stone and Burton found unusual about Dr. Benedict when they first examined him. Why did this happen?

5. The people in Piedmont appeared to have died in two different ways. Name them. What factor caused people to die in two different ways?

6. In a case of biologic emergency, select scientists were prepared to mobilize immediately to go to Wildfire. What was Wildfire? Describe its design.

The Andromeda Strain

7. When the scientists were called to Wildfire, what code words were used? What significance do the code words have?

8. Why was Mark Hall chosen to be one of the scientists for Wildfire? Aside from this, how did his specialty contribute to understanding why two people survived?

9. What was the difference between Directives 7-11 and 7-12? What were the dangers in using either directive in Piedmont?

10. Summarize the Scoop project, detailing what happened to each satellite. What was the project's true objective? Did Project Scoop fulfill its true objective?

Handwriting practice lines for the letter 'J'.

11. What were Burton's findings in the autopsy room? What did Burton fail to do in the room? When did he discover his error?

12. What were the laboratory results of the tests run on the baby and Peter Jackson? What factor kept them both alive in Piedmont?

13. Describe what Stone and Leavitt found in the capsule.

14. What was actually happening when the organism turned from green to purple, and back to green again?

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Interpreting Meanings

15. When Lieutenant Shawn surveyed Piedmont with his binoculars, what was his first clue that something might be wrong?

16. The president decided to wait 48 hours to call a Directive 7-12. Why was that the correct decision to make, even though the scientists wanted it issued immediately to destroy the infection at Piedmont?

The Andromeda Strain

17. The Andromeda strain produced no excretions or waste products. Why would this fact make the organism suited to its environment?

18. Throughout the novel, Leavitt avoided flashing red lights. Why?

19. What do the seal breaking in the autopsy room and the Phantom jet crash have in common?

20. The Andromeda strain could only grow in a pH range of 7.39 to 7.43. Why did Hall refer to this as his "highway diagnosis"?

The Andromeda Strain

21. Why was Stone alarmed when the scientists discovered that Andromeda had mutated to a noninfectious form?

22. Level V was contaminated and sealed. What predicament was in store for Mark Hall because of the design of Wildfire?

**Applying
Meanings**

23. Explain how the pH level of the blood, the growth range of Andromeda, and acidosis and alkalosis relate to one another.

Writing About the Book

On a separate sheet of paper, write the answer for each of the following.

Extending the Novel

1. The original plan for Wildfire included five scientists. Christian Kirke, an anthropologist, could not come because he was in the hospital. He was known for his ability to solve highly abstract problems. Assume that Kirke was one of the scientists. Write a short narrative in which you extend the novel and describe Kirke's presence at Wildfire. Include how Kirke could have solved the problem.

Thinking about Assumptions

2. Early in the analysis, Burton made a mistake when he assumed that the anti-coagulated rats had died from Andromeda by coagulating. Assumptions based on incomplete data can be false. Assuming that Andromeda was from an extraterrestrial source, what mistaken assumption about proteins did the Wildfire team make? Remember that they found none of the 20 amino acids listed in the novel.

Responding to a Review

3. One reviewer of Crichton's novel from *The New York Times* stated, "... I was well into Michael Crichton's *The Andromeda Strain*. And he had me convinced it was all really happening." Write an essay in which you react to this statement. Do you think this could really happen? Has it happened already? Be sure to use specific references to support your answer.

Evaluating a Character

4. "Jeremy knows everything, and is fascinated by the rest." Explain how this statement applies to Jeremy Stone. Which of Jeremy Stone's characteristics make him the right character to be the leader of the team of scientists at Wildfire?

Writing a Journal Entry

5. Imagine that you are working undercover for the government to document examples of advanced technology. You have been granted a 10-day pass to tour the Wildfire facility. Everything you see or write about is classified information to be filed by the government for future use. You may bring only writing supplies and paper into the facility. Write the entry describing the technology you observe during your stay.

Analyzing the Organism

6. If you were Jeremy Stone, what would you report to the president, and what advice would you give about Andromeda? Cite specific incidences in which a previously known pathogen has become less lethal with the passage of time. What external influences would have caused Andromeda to mutate to a non-lethal form? Would mutation to a less lethal form be considered a successful mutation? Why?

Testing on the Book

On a separate sheet of paper, write the answer for each of the following.

Critical Thinking and Writing

1. Sir Winston Churchill is quoted in the novel as saying, "True genius resides in the capacity for evaluation of uncertain, hazardous, and conflicting information." Another comment quoted from Montaigne is, "Men under stress are fools, and fool themselves." Cite specific incidents in the novel in which the scientists made errors in judgment after missing clues.
2. Koch's postulates are a set of steps to determine the causative agent of a disease. They are the following: 1) isolate the organism from the patient, 2) infect a healthy animal to recreate the disease, and 3) isolate the organism from the newly sickened animal and compare it to the organism originally isolated. The Wildfire team made several errors in determining how Andromeda killed its victims. Compare and contrast these errors with Koch's postulates. How did the Wildfire team stray from or adhere to Koch's postulates?
3. Jeremy Stone was skeptical about Mark Hall. He thought he would be of no help. Write an essay titled "The Odd Man Hypothesis." Describe how Mark Hall was, in fact, the right man for the job, and how he proved himself to Jeremy Stone.
4. Although Andromeda did not contain any known amino acids, assume that it had protein based upon different types of amino acids than what we have on Earth. What element is Andromeda missing which makes it different from Earth viruses?
5. In the Epilogue, what implication is made by the loss of *Andros V*?